



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-1	22464 MIGUEL 230 22468 MIGUEL 500 2	ML80_ML BK 80 230/500 ck 1	P1	T-1	101.8	116.4	123.9			112.3	122.2	130.3	Rely on Operating Procedure (OP)/ Preferred resources/Energy Storage, modify Miguel Bank SPS and SWPL/SPL SPS shedding gen, add SPS to open overloaded bank, increase SWPL rating, and/or add 3rd bank at Miguel if cost-effective
SC-SD-T-2	22464 MIGUEL 230 22468 MIGUEL 500 2	SP55.7_Miguel BK80 / BK 81 SPS	P1	T-1		107.2	114.1			101.3	111.7	120.7	
SC-SD-T-3	22464 MIGUEL 230 22472 MIGUELMP 500 1	ML81_ML BK 81 230/500 ck 2	P1	T-1	102.3	115.7	125.1			114.2	122.0	132.3	
SC-SD-T-4	22464 MIGUEL 230 22472 MIGUELMP 500 1	50003_OCOTILLO - SUNCREST ck 1	P1	L-1								102.4	
SC-SD-T-5	22464 MIGUEL 230 22472 MIGUELMP 500 1	50005_IMPRLVLY - OCOTILLO ck 1	P1	L-1								100.6	
SC-SD-T-6	22468 MIGUEL 500 22472 MIGUELMP 500 1	ML81_ML BK 81 230/500 ck 2	P1	T-1	103.7	118.6	126.2			114.5	124.5	132.8	
SC-SD-T-7	22468 MIGUEL 500 22472 MIGUELMP 500 1	50003_OCOTILLO - SUNCREST ck 1	P1	L-1								101.9	
SC-SD-T-8	22468 MIGUEL 500 22472 MIGUELMP 500 1	50005_IMPRLVLY - OCOTILLO ck 1	P1	L-1								100.2	
SC-SD-T-9	22885 SUNCREST 500 22888 SNCRSMP1 500 1	SCR81_SUNCREST BK81 230/500	P1	T-1								102.3	Rely on OP, Preferred resources/Energy Storage, modify SWPL/SPL SPS shedding gen, add SPS to open overloaded bank/SNC-SX 230 kV line, increase SPL rating, and/or add 3rd bank along with 3rd 230 kV line out of Suncrest if cost-effective
SC-SD-T-10	22885 SUNCREST 500 22889 SNCRSMP2 500 1	SCR80_SUNCREST BK80 230/500	P1	T-1								101.6	
SC-SD-T-11	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1	P1	L-1								100.4	
SC-SD-T-12	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2	P1	L-1								100.4	
SC-SD-T-13	22886 SUNCREST 230 22888 SNCRSMP1 500 1	SCR81_SUNCREST BK81 230/500	P1	T-1								102.3	
SC-SD-T-14	22886 SUNCREST 230 22889 SNCRSMP2 500 1	SCR80_SUNCREST BK80 230/500	P1	T-1								102.5	
SC-SD-T-15	22930 ECO 500 22935 ECO &1 500 1	50003_OCOTILLO - SUNCREST ck 1	P1	L-1			100.1				101.6	107.6	Rely on OP/ Preferred resources/Energy Storage, modify Miguel Bank SPS and SWPL/SPL SPS shedding gen, add SPS to open overloaded bank, increase SWPL rating, and/or add 3rd bank at Miguel if cost-effective
SC-SD-T-16	22930 ECO 500 22935 ECO &1 500 1	50005_IMPRLVLY - OCOTILLO ck 1	P1	L-1								105.5	
SC-SD-T-17	22935 ECO &1 500 22468 MIGUEL 500 1	50003_OCOTILLO - SUNCREST ck 1	P1	L-1			100.1				101.6	107.6	
SC-SD-T-18	22935 ECO &1 500 22468 MIGUEL 500 1	50005_IMPRLVLY - OCOTILLO ck 1	P1	L-1								105.5	
SC-SD-T-19	22356 IMPRLVLY 230 22361 IV BK80 MP 500 1	IV-8022_IV 8022 50002 & BK81 CB	P2/P4	Breaker Fault/Stuck Breaker		110.4	124.4			118.9	119.9	134.4	
SC-SD-T-20	22356 IMPRLVLY 230 22362 IV BK82 MP 500 1	IV-8022_IV 8022 50002 & BK81 CB	P2/P4	Breaker Fault/Stuck Breaker		108.5	119.7			109.3	117.9	129.4	

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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-21	22360 IMPRLVLY 500 22361 IV BK80 MP 500 1	IV-8022_IV 8022 50002 & BK81 CB	P2/P4	Breaker Fault/Stuck Breaker		110.2	124.1			117.5	119.4	133.9	Modify existing IV Bank SPS shedding gen, upgrade IV BK 80, and/or add 4th bank at IV
SC-SD-T-22	22360 IMPRLVLY 500 22362 IV BK82 MP 500 1	IV-8022_IV 8022 50002 & BK81 CB	P2/P4	Breaker Fault/Stuck Breaker						109.0			
SC-SD-T-23	22360 IMPRLVLY 500 22362 IV BK82 MP 500 1	IV-8022_IV 8022 50002 & BK81 CB	P2/P4	Breaker Fault/Stuck Breaker		104.2	114.7				113.2	123.9	
SC-SD-T-24	22464 MIGUEL 230 22472 MIGUELMP 500 1	ML-2T_MIGUEL 230 kV 2T CB	P2/P4	Breaker Fault/Stuck Breaker	101.5	115.1	124.5			113.6	121.3	131.7	Rely on OP/ Preferred resources/Energy Storage, modify Miguel Bank SPS and SWPL/SPL SPS shedding gen, add SPS to open overloaded bank, increase SWPL rating, and/or add 3rd bank at Miguel if cost-effective
SC-SD-T-25	22464 MIGUEL 230 22472 MIGUELMP 500 1	OCO-1E_OCO 1E TL50003 & TL50005	P2/P4	Breaker Fault/Stuck Breaker								101.7	
SC-SD-T-26	22464 MIGUEL 230 22472 MIGUELMP 500 1	OCO-2T_OCO 2T TL50003 & TL50006	P2/P4	Breaker Fault/Stuck Breaker								101.7	
SC-SD-T-27	22464 MIGUEL 230 22472 MIGUELMP 500 1	SCR-2T_SUNCREST 2T BK81 & TL50003	P2/P4	Breaker Fault/Stuck Breaker								102.6	
SC-SD-T-28	22468 MIGUEL 500 22472 MIGUELMP 500 1	ML-2T_MIGUEL 230 kV 2T CB	P2/P4	Breaker Fault/Stuck Breaker	102.8	118.0	125.5			113.8	123.9	132.2	
SC-SD-T-29	22468 MIGUEL 500 22472 MIGUELMP 500 1	OCO-1E_OCO 1E TL50003 & TL50005	P2/P4	Breaker Fault/Stuck Breaker								101.2	
SC-SD-T-30	22468 MIGUEL 500 22472 MIGUELMP 500 1	OCO-2T_OCO 2T TL50003 & TL50006	P2/P4	Breaker Fault/Stuck Breaker								101.2	
SC-SD-T-31	22468 MIGUEL 500 22472 MIGUELMP 500 1	SCR-2T_SUNCREST 2T BK81 & TL50003	P2/P4	Breaker Fault/Stuck Breaker								102.1	
SC-SD-T-32	22771 BAY BLVD 230 22464 MIGUEL 230 1	MS-5T_MISSION 230 kV 5T CB	P2/P4	Breaker Fault/Stuck Breaker		100.1	101.7			103.9	104.7	104.9	Rely on OP, DG, DR, and Energy Storage, build 2nd 230 kV circuit between Miguel-Bay Blvd, or retain/repower retirement resource



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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-33	22771 BAY BLVD 230 22768 BAY BLVD 69.0 2	BB-1T_BAYBLVD 230 kV 1T CB	P2/P4	Breaker Fault/Stuck Breaker		102.0	103.1				103.8	104.8	Rely on DG, DR, and Energy Storage, add 3rd bank at Bay Blvd, add 2nd Miguel-Bay Blvd 230 kV line, or retain/repower retirement resource
SC-SD-T-34	22808 STUARTTP 69.0 22400 LASPULGS 69.0 1	SA-1T_SANLUSRY 230 kV 1T CB	P2/P4	Breaker Fault/Stuck Breaker				111.4					Rely on OP or existing SPS at Talega until the overloaded section is re-conducted
SC-SD-T-35	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	SX-22T_SYCAMORE 230 kV 22T CB	P2/P4	Breaker Fault/Stuck Breaker								102.1	Rely on OP, Preferred resources/Energy Storage, modify SWPL/SPL SPS shedding gen, add SPS to open overloaded bank/SNC-SX 230 kV line, and/or add 3rd bank along with 3rd 230 kV line out of Suncrest if cost-effective
SC-SD-T-36	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 1	SX-22T_SYCAMORE 230 kV 22T CB	P2/P4	Breaker Fault/Stuck Breaker								103.2	
SC-SD-T-37	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 2	SX-22T_SYCAMORE 230 kV 22T CB	P2/P4	Breaker Fault/Stuck Breaker								103.2	
SC-SD-T-38	22930 ECO 500 22935 ECO &1 500 1	OCO-1E_OCO 1E TL50003 & TL50005	P2/P4	Breaker Fault/Stuck Breaker							101.0	107.0	Rely on OP/ Preferred resources/Energy Storage, modify Miguel Bank SPS and SWPL/SPL SPS shedding gen, add SPS to open overloaded bank, increase SWPL rating, and/or add 3rd bank at Miguel if cost-effective
SC-SD-T-39	22930 ECO 500 22935 ECO &1 500 1	OCO-2T_OCO 2T TL50003 & TL50006	P2/P4	Breaker Fault/Stuck Breaker							101.0	107.0	
SC-SD-T-40	22930 ECO 500 22935 ECO &1 500 1	SCR-2T_SUNCREST 2T BK81 & TL50003	P2/P4	Breaker Fault/Stuck Breaker			100.1				101.7	107.6	
SC-SD-T-41	22935 ECO &1 500 22468 MIGUEL 500 1	OCO-1E_OCO 1E TL50003 & TL50005	P2/P4	Breaker Fault/Stuck Breaker							101.0	107.0	
SC-SD-T-42	22935 ECO &1 500 22468 MIGUEL 500 1	OCO-2T_OCO 2T TL50003 & TL50006	P2/P4	Breaker Fault/Stuck Breaker							101.0	107.0	
SC-SD-T-43	22935 ECO &1 500 22468 MIGUEL 500 1	SCR-2T_SUNCREST 2T BK81 & TL50003	P2/P4	Breaker Fault/Stuck Breaker			100.1				101.7	107.6	
SC-SD-T-44	22771 BAY BLVD 230 22768 BAY BLVD 69.0 1	BB71_BB BK 71 230/69 and TL23026_TL23026 SILVERGT - BAY BLVD ck 1	P6	L-1/T-1		101.3	103.0				103.5	104.7	Rely on DG, DR, and Energy Storage, add 3rd bank at Bay Blvd, add 2nd Miguel-Bay Blvd 230 kV line, or retain/repower retirement resource
SC-SD-T-45	22771 BAY BLVD 230 22768 BAY BLVD 69.0 2	BB70_BB BK 70 230/69 and TL23026_TL23026 SILVERGT - BAY BLVD ck 1	P6	L-1/T-1		101.3	103.0				103.5	104.7	

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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-46	22232 ENCINA 230 22716 SANLUSRY 230 2	TL23001_TL23001 SANLUSRY - MISSION ck 1 and TL23003_TL23003 SANLUSRY - ENCINA ck 1	P6	L-1-1				101.3					OP to curtail northerbound flow via the North of SONGS path
SC-SD-T-47	22356 IMPRLVLY 230 22361 IV BK80 MP 500 1	IV81_IV BK 81 230/500/12 and IV82_IV BK 82 230/500/12	P6	L-1-1			100.3					119.3	Modify existing IV Bank SPS shedding gen, upgrade IV BK 80, and/or add 4th bank at IV
SC-SD-T-48	22360 IMPRLVLY 500 22361 IV BK80 MP 500 1	IV81_IV BK 81 230/500/12 and IV82_IV BK 82 230/500/12	P6	L-1-1			100.9					120.4	
SC-SD-T-49	22464 MIGUEL 230 22468 MIGUEL 500 2	50003_OCOTILLO - SUNCREST ck 1 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1	122.0	139.1	148.3			105.3	141.6	152.1	
SC-SD-T-50	22464 MIGUEL 230 22468 MIGUEL 500 2	50005_IMPRLVLY - OCOTILLO ck 1 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1	117.8	135.8	144.9			101.8	138.0	148.2	
SC-SD-T-51	22464 MIGUEL 230 22468 MIGUEL 500 2	L_40106_Line VIEJOSC 230.0 to CHINO 230.0 Ckt 1 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1		104.5	106.4				105.9	108.9	
SC-SD-T-52	22464 MIGUEL 230 22468 MIGUEL 500 2	ML80_ML BK 80 230/500 ck 1 and 50003_OCOTILLO - SUNCREST ck 1	P6	L-1-1	118.1	135.4	143.7			102.0	137.8	147.2	
SC-SD-T-53	22464 MIGUEL 230 22468 MIGUEL 500 2	ML80_ML BK 80 230/500 ck 1 and 50005_IMPRLVLY - OCOTILLO ck 1	P6	L-1-1	114.4	132.5	140.8				134.6	144.0	
SC-SD-T-54	22464 MIGUEL 230 22468 MIGUEL 500 2	OTAYMESA_OTAY MGP 2x1 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1		111.8	116.3				113.5	119.1	
SC-SD-T-55	22464 MIGUEL 230 22468 MIGUEL 500 2	PEN_PEN 2x1 18 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1		106.7	110.5				108.5	113.3	
SC-SD-T-56	22464 MIGUEL 230 22468 MIGUEL 500 2	SCR80_SUNCREST BK80 230/500 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1			105.4				105.2	108.2	
SC-SD-T-57	22464 MIGUEL 230 22468 MIGUEL 500 2	SCR81_SUNCREST BK81 230/500 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1			105.2				105.2	108.1	
SC-SD-T-58	22464 MIGUEL 230 22468 MIGUEL 500 2	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1		106.9	109.8				108.7	112.8	
SC-SD-T-59	22464 MIGUEL 230 22468 MIGUEL 500 2	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1		106.9	109.8				108.7	112.8	
SC-SD-T-60	22464 MIGUEL 230 22468 MIGUEL 500 2	TL23070_PIOPICO 230 - TRIP ALL UNITS ck 1 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1		105.9	108.8				107.5	111.5	
SC-SD-T-61	22464 MIGUEL 230 22468 MIGUEL 500 2	TL230WX2_PIOPICO 230 - TRIP 2 UNIT ck 1 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1		105.9	108.8				107.5	111.5	
SC-SD-T-62	22464 MIGUEL 230 22468 MIGUEL 500 2	TL230WX3_PIOPICO 230 - TRIP 1 UNITS ck 1 and ML80_ML BK 80 230/500 ck 1	P6	L-1-1		105.9	108.8				107.5	111.5	
SC-SD-T-63	22464 MIGUEL 230 22472 MIGUELMP 500 1	50003_OCOTILLO - SUNCREST ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1	122.8	139.5	150.9			107.2	142.5	154.7	



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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-64	22464 MIGUEL 230 22472 MIGUELMP 500 1	50005_IMPRLVLY - OCOTILLOick 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1	119.1	136.1	147.4			103.6	138.6	150.8	Rely on OP/ Preferred resources/Energy Storage, modify Miguel Bank SPS and SWPL/SPL SPS shedding gen, add SPS to open overloaded bank, increase SWPL rating, and/or add 3rd bank at Miguel if cost-effective
SC-SD-T-65	22464 MIGUEL 230 22472 MIGUELMP 500 1	HDW-NG_HDW - NG ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1								101.3	
SC-SD-T-66	22464 MIGUEL 230 22472 MIGUELMP 500 1	L_40106_Line VIEJOSC 230.0 to CHINO 230.0 Ckt 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		103.2	107.8				104.7	110.3	
SC-SD-T-67	22464 MIGUEL 230 22472 MIGUELMP 500 1	ML81_ML BK 81 230/500 ck 2 and 50003_OCOTILLO - SUNCREST ck 1	P6	L-1-1	118.9	135.3	146.1			103.8	138.1	149.6	
SC-SD-T-68	22464 MIGUEL 230 22472 MIGUELMP 500 1	ML81_ML BK 81 230/500 ck 2 and 50005_IMPRLVLY - OCOTILLOick 1	P6	L-1-1	115.6	132.4	143.1			100.6	134.8	146.4	
SC-SD-T-69	22464 MIGUEL 230 22472 MIGUELMP 500 1	OTAYMESA_OTAY MGP 2x1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		111.0	117.9				112.8	120.6	
SC-SD-T-70	22464 MIGUEL 230 22472 MIGUELMP 500 1	PEN_PEN 2x1 18 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		105.5	111.8				107.4	114.5	
SC-SD-T-71	22464 MIGUEL 230 22472 MIGUELMP 500 1	SCR80_SUNCREST BK80 230/500 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1			107.0				103.8	109.8	
SC-SD-T-72	22464 MIGUEL 230 22472 MIGUELMP 500 1	SCR81_SUNCREST BK81 230/500 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		102.1	106.9				103.9	109.7	
SC-SD-T-73	22464 MIGUEL 230 22472 MIGUELMP 500 1	TL23042A_TL23042A BAY BLVD-MIGUEL ckt1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1								100.4	
SC-SD-T-74	22464 MIGUEL 230 22472 MIGUELMP 500 1	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		105.5	111.2				107.3	114.1	
SC-SD-T-75	22464 MIGUEL 230 22472 MIGUELMP 500 1	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		105.5	111.2				107.3	114.1	
SC-SD-T-76	22464 MIGUEL 230 22472 MIGUELMP 500 1	TL23066_IMPRLVLY - DREW 230ick 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1								100.6	
SC-SD-T-77	22464 MIGUEL 230 22472 MIGUELMP 500 1	TL23070_PIOPICO 230 - TRIP ALL UNITS ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		104.8	110.2				106.5	113.0	
SC-SD-T-78	22464 MIGUEL 230 22472 MIGUELMP 500 1	TL230WX2_PIOPICO 230 - TRIP 2 UNIT ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		104.8	110.2				106.5	113.0	
SC-SD-T-79	22464 MIGUEL 230 22472 MIGUELMP 500 1	TL230WX3_PIOPICO 230 - TRIP 1 UNITS ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		104.8	110.2				106.5	113.0	
SC-SD-T-80	22468 MIGUEL 500 22472 MIGUELMP 500 1	50003_OCOTILLO - SUNCREST ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1	124.0	141.5	150.5			106.9	144.1	154.2	
SC-SD-T-81	22468 MIGUEL 500 22472 MIGUELMP 500 1	50005_IMPRLVLY - OCOTILLOick 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1	119.7	138.1	147.2			103.2	140.4	150.4	



Study Area: **SDG&E Bulk**

Thermal Overloads



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					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-82	22468 MIGUEL 500 22472 MIGUELMP 500 1	HDW-NG_HDW - NG ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1								101.7	
SC-SD-T-83	22468 MIGUEL 500 22472 MIGUELMP 500 1	L_40106_Line VIEJOSC 230.0 to CHINO 230.0 Ckt 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		106.4	108.4				107.9	111.0	
SC-SD-T-84	22468 MIGUEL 500 22472 MIGUELMP 500 1	ML81_ML BK 81 230/500 ck 2 and 50003_OCOTILLO - SUNCREST ck 1	P6	L-1-1	120.0	137.7	145.9			103.6	140.2	149.3	
SC-SD-T-85	22468 MIGUEL 500 22472 MIGUELMP 500 1	ML81_ML BK 81 230/500 ck 2 and 50005_IMPRLVLY - OCOTILLO ck 1	P6	L-1-1	116.2	134.8	143.1			100.3	136.9	146.1	
SC-SD-T-86	22468 MIGUEL 500 22472 MIGUELMP 500 1	OTAYMESA_OTAY MGP 2x1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		113.9	118.5				115.6	121.3	
SC-SD-T-87	22468 MIGUEL 500 22472 MIGUELMP 500 1	PEN_PEN 2x1 18 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		108.6	112.6				110.5	115.4	
SC-SD-T-88	22468 MIGUEL 500 22472 MIGUELMP 500 1	SCR80_SUNCREST BK80 230/500 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1			107.4				107.1	110.3	
SC-SD-T-89	22468 MIGUEL 500 22472 MIGUELMP 500 1	SCR81_SUNCREST BK81 230/500 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		105.4	107.2				107.1	110.1	
SC-SD-T-90	22468 MIGUEL 500 22472 MIGUELMP 500 1	TL23042A_TL23042A BAY BLVD-MIGUEL ckt1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1								101.1	
SC-SD-T-91	22468 MIGUEL 500 22472 MIGUELMP 500 1	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		108.9	111.9				110.7	114.9	
SC-SD-T-92	22468 MIGUEL 500 22472 MIGUELMP 500 1	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		108.9	111.9				110.7	114.9	
SC-SD-T-93	22468 MIGUEL 500 22472 MIGUELMP 500 1	TL23066_IMPRLVLY - DREW 230 ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1								100.9	
SC-SD-T-94	22468 MIGUEL 500 22472 MIGUELMP 500 1	TL23070_PIOPICO 230 - TRIP ALL UNITS ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		107.9	110.8				109.5	113.7	
SC-SD-T-95	22468 MIGUEL 500 22472 MIGUELMP 500 1	TL230WX2_PIOPICO 230 - TRIP 2 UNIT ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		107.9	110.8				109.5	113.7	
SC-SD-T-96	22468 MIGUEL 500 22472 MIGUELMP 500 1	TL230WX3_PIOPICO 230 - TRIP 1 UNITS ck 1 and ML81_ML BK 81 230/500 ck 2	P6	L-1-1		107.9	110.8				109.5	113.7	
SC-SD-T-97	22588 OCNSDETP 69.0 22808 STUARTTP 69.0 1	TL23007_TL23007 TALEGA - SONGS ck 1 and TL23052_TL23052 CAPSTRNO - S.ONOFRE ck 1	P6	L-1-1		104.8	106.0				104.0	105.3	Modify existing Talega SPS or upgrade the overloaded Oceanside Tap-Stuart Tap 69 kV section along with SDGE's wood-to-steel program

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-98	22596 OLD TOWN 230 22504 MISSION 230 1	TL23028C_TL23028 SILVERGT-OT-MISSION TAP A and TL23042A_TL23042A BAY BLVD-MIGUEL ckt1	P6	L-1-1			100.0					100.6	Rely on DG, DR, and Energy Storage, upgrade the Old Town-Mission 230 kV line, add 2nd Miguel-Bay Blvd 230 kV line, or retain/repower retirement resource
SC-SD-T-99	22668 POWAY 69.0 22664 POMERADO 69.0 1	TL23014_TL23014 PEN-ESCNDIDO ck 1 and TL23015_TL23015 PEN-ESCNDIDO ck 2	P6	L-1-1	108.2								OP to curtail load service until the 2nd Poway-Pomerado 69 kV line in service
SC-SD-T-100	22716 SANLUSRY 230 22232 ENCINA 230 1	TL23001_TL23001 SANLUSRY - MISSION ck 1 and TL230YY_TL230YY ENCINA - SANLUSRY ck2	P6	L-1-1				101.5					OP to curtail northerbound flow via the North of SONGS path
SC-SD-T-101	22808 STUARTTP 69.0 22400 LASPULGS 69.0 1	TL23002_TL23002 SANLUSRY-S.ONOFRE ck 2 and TL23006_TL23006 SANLUSRY - SONGS ck 1	P6	L-1-1				113.7					Rely on OP or existing SPS at Talega until the overloaded section is re-conducted
SC-SD-T-102	22808 STUARTTP 69.0 22400 LASPULGS 69.0 1	TL23002_TL23002 SANLUSRY-S.ONOFRE ck 2 and TL23010_TL23010 SANLUSRY - SONGS ck 3	P6	L-1-1				104.7					
SC-SD-T-103	22808 STUARTTP 69.0 22400 LASPULGS 69.0 1	TL23006_TL23006 SANLUSRY - SONGS ck 1 and TL23010_TL23010 SANLUSRY - SONGS ck 3	P6	L-1-1				112.8					
SC-SD-T-104	22885 SUNCREST 500 22888 SNCRSMP1 500 1	50001_50001 MIGUEL-ECO ck 1 and SCR81_SUNCREST BK81 230/500	P6	L-1/T-1	108.3	123.0	131.2				126.0	134.6	
SC-SD-T-105	22885 SUNCREST 500 22888 SNCRSMP1 500 1	50004_50004 ECO-IMPRLVLY ck 1 and SCR81_SUNCREST BK81 230/500	P6	L-1/T-1	106.1	120.6	128.8				123.5	131.7	
SC-SD-T-106	22885 SUNCREST 500 22888 SNCRSMP1 500 1	SCR81_SUNCREST BK81 230/500 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1/T-1		114.8	122.3				117.8	125.3	
SC-SD-T-107	22885 SUNCREST 500 22888 SNCRSMP1 500 1	SCR81_SUNCREST BK81 230/500 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1/T-1		112.4	120.0				115.3	122.9	
SC-SD-T-108	22885 SUNCREST 500 22889 SNCRSMP2 500 1	50001_50001 MIGUEL-ECO ck 1 and SCR80_SUNCREST BK80 230/500	P6	L-1/T-1	107.9	123.1	131.3				126.1	134.6	
SC-SD-T-109	22885 SUNCREST 500 22889 SNCRSMP2 500 1	50004_50004 ECO-IMPRLVLY ck 1 and SCR80_SUNCREST BK80 230/500	P6	L-1/T-1	105.7	120.7	128.9				123.5	131.8	
SC-SD-T-110	22885 SUNCREST 500 22889 SNCRSMP2 500 1	SCR80_SUNCREST BK80 230/500 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1/T-1		114.8	122.4				117.8	125.3	
SC-SD-T-111	22885 SUNCREST 500 22889 SNCRSMP2 500 1	SCR80_SUNCREST BK80 230/500 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1/T-1		112.5	120.1				115.3	122.9	
SC-SD-T-112	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	50001_50001 MIGUEL-ECO ck 1 and TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1	P6	L-1-1	117.2	134.8	142.8			101.8	138.4	146.7	



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-113	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	50004_50004 ECO-IMPRLVLY ck 1 and TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1	P6	L-1-1	115.0	131.5	139.5				134.5	142.9	Rely on OP, Preferred resources/Energy Storage, modify SWPL/SPL SPS shedding gen, add SPS to open overloaded bank/SNC-SX 230 kV line, and/or add 3rd bank along with 3rd 230 kV line out of Suncrest if cost-effective
SC-SD-T-114	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1-1	106.7	124.3	130.6				127.0	134.0	
SC-SD-T-115	22886 SUNCREST 230 228860 SUNCREST TP1 230 1	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1-1	104.9	121.5	127.9				123.9	131.1	
SC-SD-T-116	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	50001_50001 MIGUEL-ECO ck 1 and TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2	P6	L-1-1	117.2	134.8	142.8			101.8	138.4	146.7	
SC-SD-T-117	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	50004_50004 ECO-IMPRLVLY ck 1 and TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2	P6	L-1-1	115.0	131.5	139.5				134.5	142.9	
SC-SD-T-118	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1-1	106.7	124.3	130.6				127.0	134.0	
SC-SD-T-119	22886 SUNCREST 230 228861 SUNCREST TP2 230 2	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1-1	104.9	121.5	127.9				123.9	131.1	
SC-SD-T-120	22886 SUNCREST 230 22888 SNCRSMP1 500 1	50001_50001 MIGUEL-ECO ck 1 and SCR81_SUNCREST BK81 230/500	P6	L-1/T-1	108.3	123.0	131.2				126.0	134.6	
SC-SD-T-121	22886 SUNCREST 230 22888 SNCRSMP1 500 1	50004_50004 ECO-IMPRLVLY ck 1 and SCR81_SUNCREST BK81 230/500	P6	L-1/T-1	106.1	120.6	128.8				123.5	131.7	
SC-SD-T-122	22886 SUNCREST 230 22888 SNCRSMP1 500 1	SCR81_SUNCREST BK81 230/500 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1/T-1		114.8	122.3				117.8	125.3	
SC-SD-T-123	22886 SUNCREST 230 22888 SNCRSMP1 500 1	SCR81_SUNCREST BK81 230/500 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1/T-1		112.4	120.0				115.3	122.9	
SC-SD-T-124	22886 SUNCREST 230 22889 SNCRSMP2 500 1	50001_50001 MIGUEL-ECO ck 1 and SCR80_SUNCREST BK80 230/500	P6	L-1/T-1	107.9	123.1	131.3				126.1	134.6	
SC-SD-T-125	22886 SUNCREST 230 22889 SNCRSMP2 500 1	50004_50004 ECO-IMPRLVLY ck 1 and SCR80_SUNCREST BK80 230/500	P6	L-1/T-1	105.7	120.7	128.9				123.5	131.8	
SC-SD-T-126	22886 SUNCREST 230 22889 SNCRSMP2 500 1	SCR80_SUNCREST BK80 230/500 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1/T-1		114.8	122.4				117.8	125.3	
SC-SD-T-127	22886 SUNCREST 230 22889 SNCRSMP2 500 1	SCR80_SUNCREST BK80 230/500 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1/T-1		112.5	120.1				115.3	122.9	
SC-SD-T-128	228860 SUNCREST TP1 230 228320 SYCAMORE TP1 230 1	50001_50001 MIGUEL-ECO ck 1 and TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1	P6	L-1-1	117.3	134.9	143.0			101.8	138.5	146.8	



Study Area: **SDG&E Bulk**

Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-129	228860 SUNCREST TP1 230 228320 SYCAMORE TP1 230 1	50004_50004 ECO-IMPRLVLY ck 1 and TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1	P6	L-1-1	115.1	131.6	139.6				134.6	143.0	
SC-SD-T-130	228860 SUNCREST TP1 230 228320 SYCAMORE TP1 230 1	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1-1	106.8	124.4	130.8				127.2	134.2	
SC-SD-T-131	228860 SUNCREST TP1 230 228320 SYCAMORE TP1 230 1	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1-1	105.0	121.6	128.0				124.0	131.2	
SC-SD-T-132	228860 SUNCREST TP1 230 228320 SYCAMORE TP1 230 2	50001_50001 MIGUEL-ECO ck 1 and TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1	P6	L-1-1	117.3	134.9	143.0			101.8	138.5	146.8	
SC-SD-T-133	228860 SUNCREST TP1 230 228320 SYCAMORE TP1 230 2	50004_50004 ECO-IMPRLVLY ck 1 and TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1	P6	L-1-1	115.1	131.6	139.6				134.6	143.0	
SC-SD-T-134	228860 SUNCREST TP1 230 228320 SYCAMORE TP1 230 2	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1-1	106.8	124.4	130.8				127.2	134.2	
SC-SD-T-135	228860 SUNCREST TP1 230 228320 SYCAMORE TP1 230 2	TL23054_TL23054 SUNCREST-SYCAMORE 230 ck 1 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1-1	105.0	121.6	128.0				124.0	131.2	
SC-SD-T-136	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 1	50001_50001 MIGUEL-ECO ck 1 and TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2	P6	L-1-1	117.3	134.9	143.0			101.8	138.5	146.8	
SC-SD-T-137	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 1	50004_50004 ECO-IMPRLVLY ck 1 and TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2	P6	L-1-1	115.1	131.6	139.6				134.6	143.0	
SC-SD-T-138	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 1	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1-1	106.8	124.4	130.8				127.2	134.2	
SC-SD-T-139	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 1	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1-1	105.0	121.6	128.0				124.0	131.2	
SC-SD-T-140	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 2	50001_50001 MIGUEL-ECO ck 1 and TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2	P6	L-1-1	117.3	134.9	143.0			101.8	138.5	146.8	
SC-SD-T-141	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 2	50004_50004 ECO-IMPRLVLY ck 1 and TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2	P6	L-1-1	115.1	131.6	139.6				134.6	143.0	
SC-SD-T-142	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 2	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1-1	106.8	124.4	130.8				127.2	134.2	

Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-143	228861 SUNCREST TP2 230 228321 SYCAMORE TP2 230 2	TL23055_TL23055 SUNCREST-SYCAMORE 230 ck 2 and 50004_50004 ECO-IMPRLVLY ck 1	P6	L-1-1	105.0	121.6	128.0				124.0	131.2	
SC-SD-T-144	22464 MIGUEL 230 22472 MIGUELMP 500 1	23054/23055_SX-SUNCREST ckt 1&2 230kv	P7	Common structure								101.5	Rely on OP/ Preferred resources/Energy Storage, modify Miguel Bank SPS and SWPL/SPL SPS shedding gen, add SPS to open overloaded bank, increase SWPL
SC-SD-T-145	22468 MIGUEL 500 22472 MIGUELMP 500 1	23054/23055_SX-SUNCREST ckt 1&2 230kv	P7	Common structure								101.1	
SC-SD-T-146	22588 OCNSDETP 69.0 22808 STUARTTP 69.0 1	23007/23052_S.ONOFRE-TA+S.ONOFRE-CAP 230	P7	Common structure		111.0	112.4				110.2	111.7	Modify existing Talega SPS or upgrade the overloaded Oceanside Tap-Stuart Tap 69 kV section along with SDGE's wood-to-steel program
SC-SD-T-147	22668 POWAY 69.0 22664 POMERADO 69.0 1	23014/23015_PEN-ES #1 + #2 230 kV	P7	Common structure	114.3			115.0					OP to curtail load service until the 2nd Poway-Pomerado 69 kV line in service
SC-SD-T-148	22771 BAY BLVD 230 22464 MIGUEL 230 1	23022/23023_ML-MS 230 kV #1&#2	P7	Common structure		101.3	103.0				103.5	104.7	Rely on OP, DG, DR, and Energy Storage, build 2nd 230 kV circuit between Miguel-Bay Blvd, or retain/repower retirement resource
SC-SD-T-149	22808 STUARTTP 69.0 22400 LASPULGS 69.0 1	23002/23010_SA-SO 2 + SO-SA 3 230 kV	P7	Common structure				102.2					Rely on OP or existing SPS at Talega until the overloaded section is re-conducted



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SC-SD-T-150	22930 ECO 500 22935 ECO &1 500 1	23054/23055_SX-SUNCREST ckt 1&2 230kv	P7	Common structure							101.4	107.2	Rely on OP/ Preferred resources/Energy Storage, modify Miguel Bank SPS and SWPL/SPL SPS shedding gen, add SPS to open overloaded bank. increase SWPL
SC-SD-T-151	22935 ECO &1 500 22468 MIGUEL 500 1	23054/23055_SX-SUNCREST ckt 1&2 230kv	P7	Common structure							101.4	107.2	
SC-SD-T-152	24044 ELLIS 230 24072 JOHANNA 230 1	50001_50001 MIGUEL-ECO ck 1 and L_40034_Line ELLIS 230.0 to SANTIAGO 230.0 Ckt 1	P6	L-1-1			102.7					101.2	Rely on OP, Preferred Resources/Energy Storage, or upgrade the Ellis corridor by replacing terminal equipments and increasing the lines clearance if cost-effective
SC-SD-T-153	24044 ELLIS 230 24072 JOHANNA 230 1	50004_50004 ECO-IMPRLVLY ck 1 and L_40034_Line ELLIS 230.0 to SANTIAGO 230.0 Ckt 1	P6	L-1-1			101.6						
SC-SD-T-154	24044 ELLIS 230 24134 SANTIAGO 230 1	50001_50001 MIGUEL-ECO ck 1 and L_40033_Line ELLIS 230.0 to JOHANNA 230.0 Ckt 1	P6	L-1-1		100.3	107.4					105.7	
SC-SD-T-155	24044 ELLIS 230 24134 SANTIAGO 230 1	50004_50004 ECO-IMPRLVLY ck 1 and L_40033_Line ELLIS 230.0 to JOHANNA 230.0 Ckt 1	P6	L-1-1			106.1					104.1	
SC-SD-T-156	24044 ELLIS 230 24134 SANTIAGO 230 1	L_40033_Line ELLIS 230.0 to JOHANNA 230.0 Ckt 1 and 50001_50001 MIGUEL-ECO ck 1	P6	L-1-1			100.7						

Regarding Table 4-1 of the Study Plan, the “2025 Winter Peak” Base Case for the SDG&E area was changed to “2019/2020 Winter Peak”

Regarding Table 4-2 of the Study Plan, the “2025 Summer Peak and Summer Off-peak with heavy renewable output and IID southern ties to ISO normally open” sensitivity scenario for the SDG&E area was not performed

Regarding Table 4-2 of the Study Plan, a “2025 Summer Peak with heavy renewable output and minimum gas generation commitment” for the SDGE area was added

For the SDG&E area, power factor for the 2017 base case was modeled using the most recent historical values.

The Metro area 2020 SP sensitivity scenario “Summer Peak with OTC plants replaced” in Table 4-2 of the Study Plan was changed to a Summer Peak scenario with early OTC retirements (Northwest LA Basin)

Study Area: **SDG&E Bulk**

Voltage Deviations



ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SDGE-VD-1	BOULEVRD 138 kV	50003_OCOTILLO - SUNCREST ck 1									5.126		Maintain dynamic reactive support from the Otay Mesa and Pio Pico plants and synchronous condensers at Miguel
SDGE-VD-2	BOULEVRD 138 kV	50004_50004 ECO-IMPRLVLY ck 1									-5.001		Maintain dynamic reactive support from the Otay Mesa and Pio Pico plants and synchronous condensers at Miguel
SDGE-VD-3	BOULEVRD 138 kV	50005_IMPRLVLY - OCOTILLO ck 1									5.084		Maintain dynamic reactive support from the Otay Mesa and Pio Pico plants and synchronous condensers at Miguel

Study Area: **SDG&E Bulk**

High/Low Voltage



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)								Potential Mitigation Solutions
					2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
X-V-1	BORREGO 69 kV	SPS5.11_500kV TL50005 GEN DROP SPS			1.103					1.1063			Switch on the shunt reactors at Sycamore Canyon 69 kV substation
X-V-2	BORREGO 69 kV	SPS5.9A_500kV TL50003(OCO-SUC) GEN DROP SPS								1.1054			Switch on the shunt reactors at Sycamore Canyon 69 kV substation



Study Area: SDG&E Bulk

Transient Stability



ID	Contingency	Category	Category Description	Transient Stability Performance								Potential Mitigation Solutions
				2017 Summer Peak	2020 Summer Peak	2025 Summer Peak	2017 Spring Off-Peak	2020 Spring Light Load	2020 Winter Peak	2020 SP with Heavy renewable output	2025 SP with Heavy renewable output	
SDGE-BULK-TS-1	TL50001 ECO-MIGUEL 500 KV line out of service followed by TL50003 OCO-SUNCREST 500 kV line outage , with system adjustment between the two outages	P6	L-1-1	None	None	41.0~30.2 % of transient voltage dips at Valley-S/Johanna/Santiago/Ellis /VillaPK/Orcogen /ViejoSC/LwisANM/Barre/Huntington Beach buses in SCE	None	None	None	None	39.9~30.0 % of transient voltage dips at Valley-S/Johanna/Santiago/Ellis /VillaPK/Orcogen /ViejoSC/LwisANM/Barre/Huntington Beach buses in SCE	Further Evaluation
SDGE-BULK-TS-2	TL50003 OCO-SUNCREST 500 KV line out of service followed by TL50001 ECO-MIGUEL 500 kV line outage , with system adjustment between the two outages	P6	L-1-1	None	None	None	None	None	None	None	None	Further Evaluation

Study Area: **SDG&E Bulk**



Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)								Potential Mitigation Solutions
				Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-SLD-1												

No single contingency resulted in total load drop of more than 250 MW.

Study Area: **SDG&E Bulk**



*Single Source Substation with more than 100 MW Load*

ID	Substation	Load Served (MW)								Potential Mitigation Solutions
		Select..	Select..	Select..	Select..	Select..	Select..	Select..	Select..	
X-SS-1										

No single source substation with more than 100 MW Load